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ANARE FIRST AID MANUAL

Peter Gormly MB FRCS

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**Antarctic Division
Department of Science and Technology**

ANARE FIRST AID MANUAL

Peter Gormly MB FRCS

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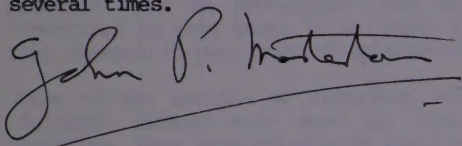
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Foreword

This manual has been written with dedication to, and knowledge of, the problems of illness and accident in the cold hostile environment of the Antarctic. This is an unforgiving land where a simple problem by our terms in "civilisation" becomes a matter of life or death unless managed correctly. The author has given a clear and practical guide to management of what he and his colleagues believe are the most likely problems to be encountered when isolated from medical care. He has done his job with skill and, thankfully, brevity. As someone who once knew the problems well myself I recommend this booklet quite unreservedly. Read it several times.

A handwritten signature in dark ink, reading "John P. Masterton". The signature is written in a cursive style with a long horizontal line extending from the end of the name.

JOHN P MASTERTON

Surgeon, Alfred Hospital Melbourne;
formerly Medical Officer, British
North Greenland Expedition 1952-54.

FOREWORD TO THIRD EDITION

It is a great pleasure once more to write the foreword to this immensely practical manual, now in its third edition. It has been refined since it was first written and has thereby improved in quality and usefulness. It is sufficiently detailed and comprehensive and I hope future editions do not fall into the trap of expanding any further. It should remain as a constant companion of every expeditioner.

JOHN P MASTERTON

Introduction

This Manual is designed as a ready reference work for use in the field. Keep it in a plastic bag, in your pack or pocket, whenever you are out and about.

Consult your Medical Officer (M.O.) about Pocket First Aid Kits for day trips near the station. He will also brief you on first aid equipment and supplies sent with major traverses or camping trips away from the station. (You may also take a ST. JOHN'S FIRST AID MANUAL for reference).

Your M.O. may provide you with different supplies or instruct you in procedures that differ from those described in this book; if so, make sure that you note any changes in your copy of this Manual.

Some of the details of treatment described should be followed through only when you have the appropriate supplies, have been briefed in their use, and if expert help is unavailable. In the field you should make radio contact with the M.O. if possible.

If you come across a medical emergency and the M.O. is available or able to be contacted, then send for his help. In the meantime proceed as indicated in this manual using whatever you have available. When you are by yourself with an injured man do not leave him and go for help unless he is conscious, comfortable, and protected from the weather, and you are convinced assistance will not arrive in reasonable time. Leave details of your anticipated route with the victim.

ALWAYS notify someone of your intended whereabouts and estimated time of return whenever you leave the station vicinity.

Have a TETANUS TOXOID booster injection if you have not received one in the last three years.

Finally, remember that in First Aid you may not always be able to do everything right for every condition at once. Just do your best.

1. The seriously injured or ill

PRINCIPLES

The victim may be in a heap at the bottom of a cliff or stretched out in a room; he may be CONSCIOUS or UNCONSCIOUS (next page).

IN ANY CIRCUMSTANCES THIS ORDER OF PRIORITY APPLIES:

PRIORITIES			Pages
A	AIRWAY	if NO - Clear	6-7
B	BREATHING	if NO - Expired Air Resuscitation	9-10
C	CIRCULATION	if NO - Cardiopulmonary Resuscitation	12-13
	<u>then</u>		
	Bleeding	- Press on the wound	14
	Fractures and Dislocations	- Immobilise	16
D	Degrees	- Check temperature (? hypothermia)	31

CAUTIONS

In general: you must always ensure safety for yourself and for the victim.

In particular:

- (i) if an injured neck or back is suspected do not bend or twist it (page 17);
- (ii) if electrocuted: disconnect from the power source;
- (iii) if gassed: be careful (page 39);
- (iv) if there is one injury there may be others: RE-EXAMINE the patient from time to time.

Basic life support

CONSCIOUSNESS

Whether the victim has collapsed or been injured it is vital to determine whether he is CONSCIOUS or UNCONSCIOUS: and remember he may be conscious initially and become UNCONSCIOUS LATER.

ACTION: check response to SHAKE and SHOUT.

A person is conscious if they can respond to the spoken word and obey a shouted command:

SHAKE victim gently by the (uninjured) shoulder;
ASK for their name.

GIVE THEM SIMPLE COMMANDS:

"Open your eyes"

"Squeeze my hand"

"Let my hand go".

If they respond, they are CONSCIOUS.

If not, they are UNCONSCIOUS.

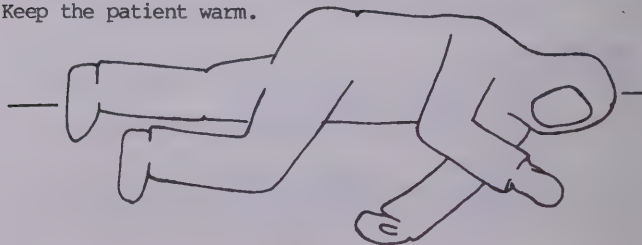
See the summary diagram opposite.

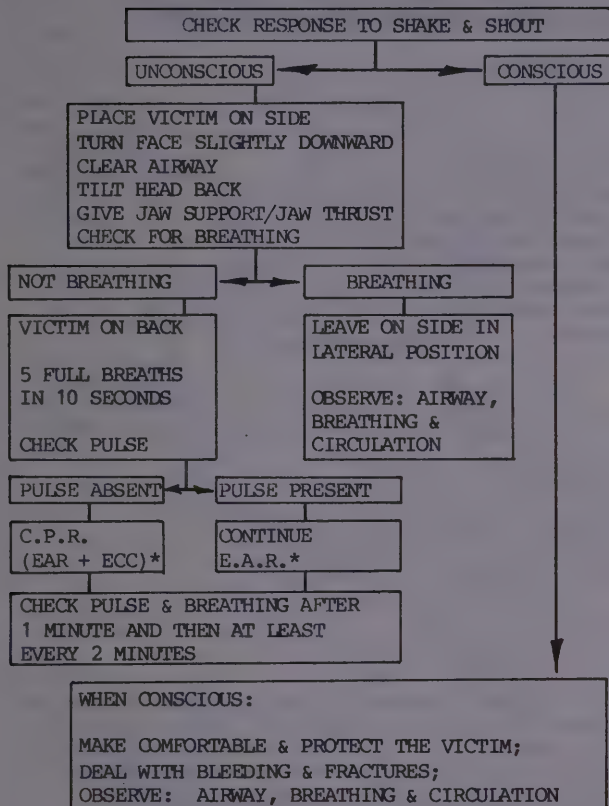
The lateral position (opposite page and page 8)

The unconscious victim who is breathing may be placed in this position if it is necessary to wait for further assistance (but note spinal injury, pages 5 and 17).

Continue to OBSERVE the victim's AIRWAY, BREATHING and CIRCULATION.

Keep the patient warm.





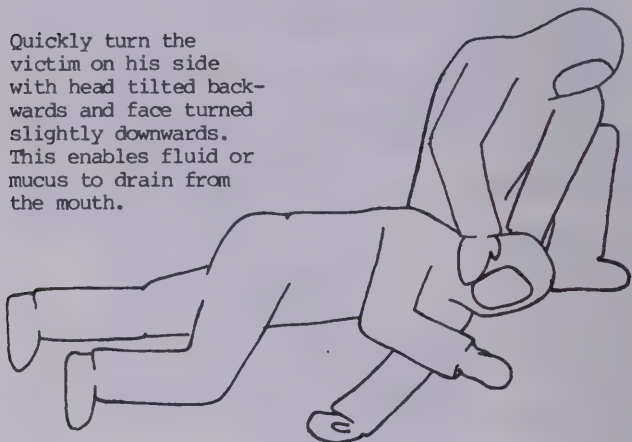
CAUTION: If spinal injury is suspected (page 17) these procedures must still be carried out, but the spine must not be bent or twisted. Keep shoulders and hips parallel and in line; head must be kept straight and steady with the jaw pulled forward to clear the airway.

- *E.A.R. - Expired Air Resuscitation (pages 9-10)
E.C.C. - External Cardiac Compression (pages 12-13)
C.P.R. - Cardiopulmonary Resuscitation (E.A.R.+E.C.C.)

The unconscious victim

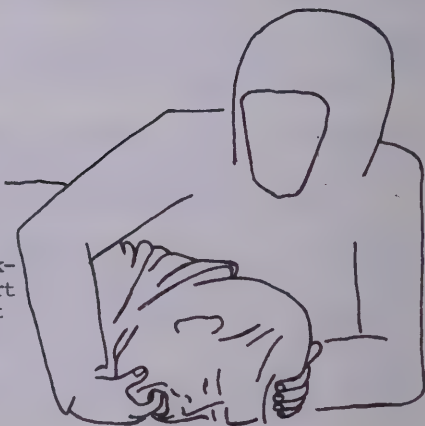
A — AIRWAY

Quickly turn the victim on his side with head tilted backwards and face turned slightly downwards. This enables fluid or mucus to drain from the mouth.



Clear the mouth of vomit or foreign material and remove loose (partial or complete) dentures.

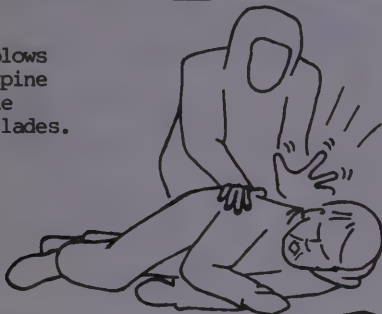
Put the head in backward tilt and support the jaw at the point of the chin, or use jaw thrust with forward pressure at the angle of the lower jaw.



If the airway remains blocked look for the obstruction. If it is clearly seen it may be hooked out of the throat with fingers: DO NOT USE BLIND FINGER PROBES.

NO LUCK?

Give two blows
over the spine
between the
shoulder blades.



STILL NO LUCK?
Follow with two
lateral chest
thrusts.



Note:

The airway may be blocked by drunkenly choking on food, among other things. There will be:

- distress
 - heaving chest
 - noisy, or no, breathing
- & the victim may or may not be blue

If the victim is unconscious proceed as above, but if the victim can

- speak
- cough
- breathe

DO NOT INTERFERE - let him cough it up. Drinks of water may be given to help dislodge the obstruction.

B — BREATHING

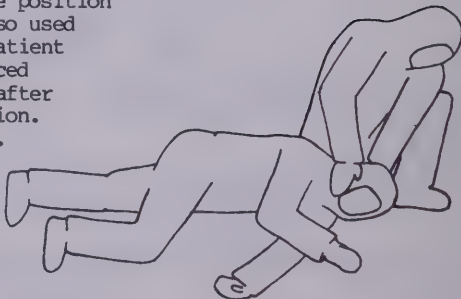
Check

Check for breathing by watching for the movement of lower chest, and belly, and by listening and feeling for the escape of air from the victim's mouth and nose.



If breathing:

Leave the victim lying on side with head in backward tilt and jaw supported to keep the airway open. This is the position that is also used when the patient has commenced breathing after resuscitation. See page 4.



If NOT breathing:

Commence EXPIRED AIR RESUSCITATION (E.A.R.) immediately (See following pages).

EXPIRED AIR RESUSCITATION

You must learn this technique before you need to use it. The station M.O. has training mannequins and will provide instruction and practical sessions.

Mouth to mouth method

Once it is established that the victim is not breathing:

Turn him on his back, then:

TILT BLOW LOOK LISTEN FEEL

Kneel beside his head. Place palm of one hand on top of head, support chin with other hand and firmly but gently tilt head backwards. The chin is supported at the point by the knuckle of the middle finger, with little and ring fingers clear of neck and jaw.

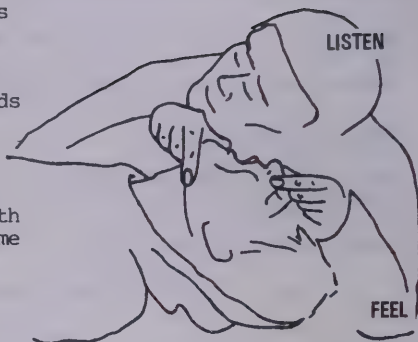


Take a deep breath, open your mouth as widely as possible and place it over the victim's slightly open mouth, sealing the nose by pinching the nostrils between thumb and index finger. Blow to inflate the patient's lungs. Observe the victim's chest.



GIVE 5 FULL INFLATIONS IN 10 SECONDS AND THEN CHECK CAROTID PULSE.

Following inflation of the victim's lungs with an obvious rise of the chest, lift your mouth from his, turn your head towards his chest and with your ear near to his mouth, listen and feel for air being exhaled from the mouth and nose. At the same time observe his stomach to ensure it has not been distended with air.



GIVE 5 FULL INFLATIONS IN 10 SECONDS AND THEN CHECK CAROTID PULSE.

Mouth to nose method

This method is used if an obstruction or damaged jaw prevents the use of the above technique. Positions are the same as above. Seal your lips around the victim's nose without compressing his nostrils. Close the victim's mouth by placing your thumb on the lower lip. Blow to inflate the lungs and watch the chest rise. Remove your thumb to allow air to leave the victim's lungs. Listen and feel for air being exhaled.



GIVE 5 FULL INFLATIONS IN 10 SECONDS AND THEN CHECK CAROTID PULSE.

C — CIRCULATION

Check

Feel for the carotid pulse in the neck.

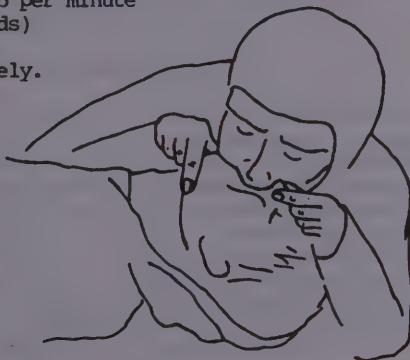
The pulse should be felt with the pads of the fingers and not the finger tips.



If pulse is PRESENT:

Continue Expired Air Resuscitation (E.A.R.) at the rate of 15 per minute (1 every 4 seconds) until the victim breaths effectively.

Check for the carotid pulse after 1 minute and then at least every 2 minutes.



If pulse is ABSENT:

Continue E.A.R. and start EXTERNAL CARDIAC COMPRESSION (E.C.C.). See CARDIOPULMONARY RESUSCITATION (C.P.R.) next page.

CARDIOPULMONARY RESUSCITATION

This is E.A.R. and E.C.C.

ONE RESCUER:

Place the victim flat on a firm surface. Place the heel of one hand on the centre of the lower half of the breastbone.

Lock the other hand round the wrist of the lower hand. Keep the fingers relaxed and off the ribs.

Keep the compressing arm straight and use the body weight as the compressing force. Depress the breastbone 4-5 cm ($1\frac{1}{2}$ to 2 ins).



THE SEQUENCE IS: 2 INFLATIONS AND 15 COMPRESSIONS IN 15 SECONDS (4 CYCLES PER MINUTE FOR ADULTS).

TWO RESCUERS:

Where there are two rescuers, there must be no pause in compressions and the inflations must be interposed between the last compression of the cycle and the first of the next.



THE SEQUENCE IS: 1 INFLATION AND 5 COMPRESSIONS IN 5 SECONDS = 60 COMPRESSIONS/MINUTE (12 CYCLES PER MINUTE FOR ADULTS).

C.P.R. may restart the heart, or maintain artificial circulation until further treatment is possible.

You must be familiar with the methods and the station M.O. will provide instruction if necessary.

Some important points

External cardiac compression should be performed only by trained rescuers.

Hand positions must be correct to give effective compression and to avoid damage to underlying structures:

- locate the ends of the breastbone as follows:
 LOWER - run fingers inwards along both rib margins until they meet; leave one finger there;
 UPPER - feel the groove between the collar bones with a finger of the other hand.
- then locate the midpoint by extending the thumbs to meet each other
- keep the thumb of the upper hand in position and place the heel of the lower hand against it over the lower half of the breastbone.

Where there are two rescuers, there must be no pause in compressions.

Do not give, up even in the face of an apparently hopeless situation, until trained help arrives - or the patient's pulse and breathing return.

REMEMBER THE TIMING:

ONE RESCUER : 2 INFLATIONS AND 15 COMPRESSIONS IN 15 SECONDS (4 CYCLES/MIN FOR ADULTS)

TWO RESCUERS : 1 INFLATION AND 5 COMPRESSIONS IN 5 SECONDS (12 CYCLES/MIN FOR ADULTS)

2. Bleeding

External Bleeding

EXTERNAL bleeding should be obvious.
TREATMENT is PRESSURE and PATIENCE.

A pad of anything pressed over a wound gushing or oozing blood will stop most bleeding. DON'T keep dabbing the clot away. When bleeding has subsided bandage the pad (or a cleaner one) firmly over the wound. A limb may be elevated if it is not broken. Use of pressure points (illustrated in St Johns Manual) may be useful. TOURNIQUETS should only be considered for partially or completely severed limbs. Secure the tourniquet tightly, over a pad, on the trunk side of the wound and NOTE THE TIME. Release it at 15 minute intervals; the bleeding may have stopped.

Internal Bleeding

Internal bleeding may result from disease or injury. Blood may be coughed up, vomited up (looks like coffee grounds), or passed per rectum (faeces may look black and tar-like). Internal bleeding may be suspected after crush injuries to the trunk with broken ribs, or a tender, rigid belly. Fractures also cause internal bleeding, and a broken thigh or multiple fractures may cause shock due to this loss of blood.

SHOCK

INTERNAL or EXTERNAL BLEEDING or BURNS may cause SHOCK: oxygen supply to the body is inadequate, usually due to loss of blood or fluids, or failure of the heart. The victim is usually pale, sweating, and breathless, with a weak pulse over 120 beats per minute. He may faint.

First Aid

Keep the victim warm but not hot. Keep him flat, with legs propped up in the air. If there is breathing difficulty prop the body up, still elevating the legs. If unconscious place in the lateral position (page 4).

Treatment of shock

- Handle gently. Avoid unnecessary movement.
- If unconscious, place in lateral position and observe airway, breathing, circulation (page 4).
- Control any bleeding.
- Elevate legs if possible, but keep head level with heart.
- Immobilise any fractures (see next page).
- Protect from extremes of temperature.
- Moisten lips, but give nothing by mouth.
- Administer oxygen.

If the patient's condition does not improve treatment is by INTRAVENEOUS INFUSION and you may be provided with HAEMACCEL to use in such an emergency in the field. If so the M.O. will brief you on the technique; following are reminders:

- Connect up the GIVING SET to HAEMACCEL UNIT and run fluid through to the end of the tubing. THE FLUID MUST BE CLEAR (AND SHOULD BE WARM).
- Insert a needle in a vein (see pages 51 and 52). A 19 Gauge INTRAVENOUS AND SCALP VEIN SET (BUTTERFLY) into a vein on the front of the elbow (or back of the hand) will probably be suitable.
- Let blood flow to the end of the Butterfly tubing and then connect up to the giving set; tape in place and bandage arm to splint to keep elbow (or wrist) immobilised.
- Set drip rate to 350-150 drops/minute (60-25 drops in 10 seconds), giving 500 ml (one unit) in 15-30 minutes, and a further 500 ml in 30 minutes. One further unit MAY be given over 60 minutes. (10 drops/ml).

If you have been provided with HARTMANN'S SOLUTION give 1000 ml in 30 minutes, first, then 500 ml HAEMACCEL in 15-30 minutes. This sequence may be repeated once. DO NOT LET A BOTTLE RUN DRY.

If you have other intravenous fluids (such as HARTMANN'S) you may continue the drip at 20 drops per minute (= 1000 ml every 8 hours).

3. Fractures and dislocations

These are indicated by pain, deformity, and loss of use of the part, after injury. NOTE: IF THERE IS ONE INJURY THERE MAY BE OTHERS. Re-examine the victim after initial treatment.

It is important not to allow further damage to surrounding structures such as nerves and blood vessels; IMMOBILISE the part and summon the M.O. if you are in the vicinity of the station.

If in the field, when expert help will be much delayed, more definitive treatment may be attempted before immobilisation. Cut into the clothing to inspect an injured part, but do not throw the clothing away; the patient will need it!

Blood circulation

This must always be watched with any injury to the limb. The circulation may be cut off at the time of injury, or later due to swelling: the part of the limb beyond the injury becomes COLD, WHITE OR MOTTLED, and possibly PARALYSED. It may become very PAINFUL. There is NO PULSE at the wrist or behind the bone on the inside of the ankle. Look at the COLOUR under the finger or toe NAIL; this normally blanches with momentary pressure on the nail, then returns pink if circulation is present and the part is warm.

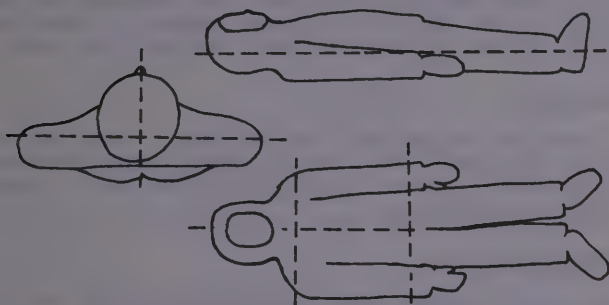
If the circulation is lost at the time of injury: PULL THE LIMB STRAIGHT AT ONCE. If you are in the field beyond immediate help then "have a go" or the limb may be lost.

If the circulation is lost after treating an injury, LOOSEN ALL the bandages and splints and elevate the part until circulation returns; then resplint.

SPINAL INJURIES

If there is pain in the neck or back, OR the victim is unconscious after a severe injury, then fracture or dislocation of the spine must be suspected. There may or may not be paralysis or numbness of the arms or legs, or difficulty in breathing.

When the patient must be moved the head, neck, and trunk must be kept in a straight line without them being bent forward or twisted. Hips and shoulders should be parallel and in line, and the head kept straight.



Some support should be given to the back of the neck and in the small of the back where the spine normally curves forwards.



Steady the head between both hands and pull gently but firmly, keeping the chin up. Several people must assist in lifting the victim on to a firm support. Padding should then be used to keep the patient in the position shown if conscious. If he is unconscious he will have to be supported by makeshift pads and pillows in the LATERAL position (page 4).

BROKEN BONES

Nose

If obviously bent in the accident: straighten it with finger and thumb at once if possible. Stop continued bleeding by squeezing the nostrils, below the bone.

Collar Bone

A fracture of this (clavicle) is well treated by a BROAD ARM SLING (see page 22) which must support the elbow. This should be worn under the clothes. At night sleep propped up with the elbow supported by the sling, or lie flat with a pillow between the shoulder blades so that the shoulders fall back on either side.

Upper Arm

A fractured humerus will hang straight. Bend the arm across the chest (like a Roman salute) and suspend the wrist with a narrow sling around the neck. Wear clothes over the top.

Forearm and wrist

Lay a padded splint along the palm side of the forearm and wrist, extending to the knuckles and curling the fingers around the end of the splint. Keep fingers accessible so that circulation can be checked. Bandage the splint and arm together and place in a broad arm sling under the clothes.

Hand injuries

A dislocated finger or thumb joint may be obvious because it is locked in an odd position. If possible, pull it straight at once while still "numb". After finger dislocations use two strips of one-inch elastic adhesive plaster to tape the damaged and an adjacent finger together.

Broken fingers are often "wobbly" and there may be wounds of the skin, especially after crushing injuries. These are COMPOUND FRACTURES (page 21).

CLEAN the wounds and CLOSE them if possible (page 27).
Give ANTIBIOTICS (see Compound Fractures, page 21).
Use lots of padding to bandage the hand like a boxing glove BUT keep

- the knuckles bent
- the fingers almost straight
- the tips of thumb and forefinger almost touching.



ELEVATE the hand with sling or pillow to stop swelling.

Ribs

Broken ribs may be complicated by internal bleeding or damage to the lung. Watch for signs of SHOCK or DIFFICULTY WITH BREATHING. Sitting up (with the legs elevated if necessary for shock) is usually the best position; the damaged chest may be supported with the victim's hands. In the absence of major problems the treatment is pain relief with ASPIRIN or PANADOL (page 48).

Pelvis

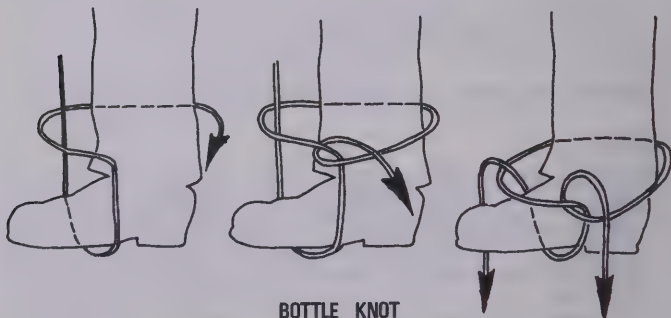
A fractured pelvis is usually due to a fall or crush injury. Watch for SHOCK from internal haemorrhage, and URINATION; there may be blood in the urine or at the tip of the penis - in which case discourage the victim from passing urine if possible. In the absence of complications treatment is REST and PAIN RELIEF (page 48).

Thigh

Fractured femur (thigh bone) is a major injury; watch for SHOCK (page 14).

To control the fracture: grasp the foot with one hand, with the other hand behind the knee, and slowly but firmly pull the leg out to length; then straighten it. Then bind the legs together, and to a splint. Make sure the FEET are tied TOGETHER to stop the leg rolling out. Give PETHIDINE injection : 100 mg, intramuscularly, for pain relief (page 48).

If available, a THOMAS SPLINT is best. Your M.O. will instruct you in its use. Use a BOTTLE KNOT to tie the foot to the end of the splint if you are not using a SKIN-TRACTION SET.



Lower leg

A fractured tibia and fibula is often very "wobbly" and painful. Grasp the foot and pull the leg slowly but firmly out to length; then straighten it. Now the leg may be placed in a BOX SPLINT, padded and tied in; or bound to the other leg and a splint. Make sure the foot does not roll out, either by using the box splint or by tying the feet together. Give PETHIDINE injection : 100 mg, intramuscularly, for pain relief (page 48). Check circulation at toes regularly.

You may have an AIR SPLINT if the M.O. has instructed you in its use. Unfortunately, the outer clothing and footwear, at least, must be removed before this splint can be used. In the field it MUST NOT BE BLOWN UP BY MOUTH as the moisture in the breath will freeze inside the splint. Blow it up by PUMP but NOT BEYOND THE PRESSURE POSSIBLE WITH MOUTH INFLATION. If transported by aircraft release pressure as the machine ascends; the blown-up splint will expand in the rarer atmosphere. In any situation, the patient must always be able to feel and wriggle his toes to show that the BLOOD CIRCULATION is normal.

Ankle

Severe injuries to the ankle are best left as they lie, unless they are very wobbly when they may be gently straightened. Bandage, with lots of padding, from toes to knee and immobilise with a makeshift splint. Or use a BOX SPLINT or AIR SPLINT as above.

COMPOUND FRACTURES

The skin may be punctured by a piece of broken bone: only a small bleeding wound will be seen. Or there may be a bigger wound due to the injury which caused the fracture.

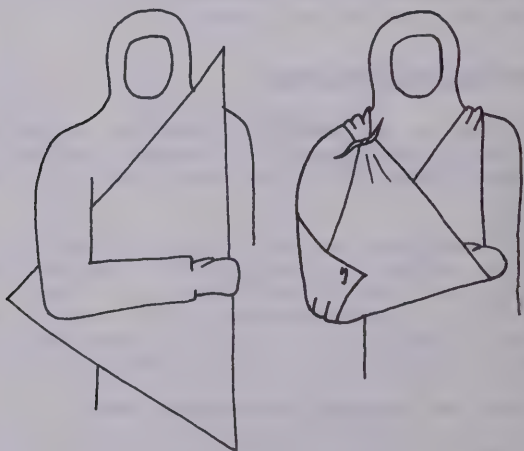
In either case clean and dress the wound (page 27) and start the patient on ANTIBIOTICS. ENQUIRE ABOUT ALLERGIES TO DRUGS FIRST. If not allergic to penicillin give KEFLEX CAPSULES 500 mg : four at once, then one, 6-hourly. If allergic to penicillin give ERYTHROMYCIN CAPSULES 250 mg : two, 6-hourly.

Then treat the fractures as indicated above.

DISLOCATIONS

You must contact your M.O. before dealing with these (except in the case of fingers as mentioned previously in 'Hand Injuries', page 18, or dislocated shoulders, as follows).

The commonest dislocations are, in fact, of fingers and shoulders. A dislocated shoulder is often recognised as such if the injury has been suffered previously. In this case lay the patient face down on anything clear of the ground and allow the injured arm to hang down freely. With time (up to half an hour) and relaxation it may relocate under its own weight. If so then support the arm in a broad arm sling (see below) and bandage the slung arm to the body, under the clothes. If in doubt, do nothing except support the arm until medical advice is obtained.



If the circulation is lost in knee or elbow dislocations (page 16) it may be worth trying to pull the joint straight if expert help is not expected for some hours.

4. Sprains

These are injuries to joints with only some tearing of the ligaments. An X-RAY will often be necessary to exclude a complete ligament tear, a fracture or dislocation. Report to the M.O. when possible.

The joint will be swollen and painful. Bruising may appear in a few days. Movement of the joint is possible, and not harmful, although full movement is restricted by pain.

Elevation of the part and application of cold (not freezing) packs may help to minimise the swelling.

Fingers

Strap together as described in Hand Injuries (page 18).

Wrist

If very swollen then splint as described for broken Forearm and Wrist (page 18). If not, or when swelling subsides, then bandage from palm to elbow, including the thumb, with a heavy elastic bandage. Exercise the fingers, elbow and shoulder.

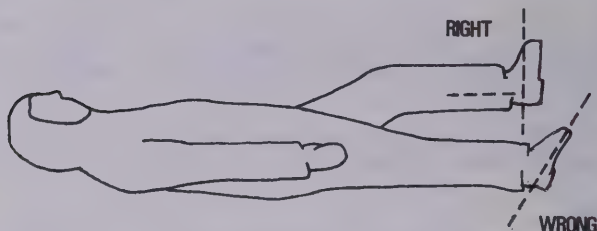
Knee

If very swollen suspect a more serious injury. With the knee as straight as possible wrap a thick layer of cotton wool around the leg from mid-calf to mid-thigh and then apply a wide, heavy elastic bandage; add a further thick layer of cotton wool and then another firm bandage or two. REST UP IF AT ALL POSSIBLE.

Immobilisation in a Box Splint or Thomas Splint may be appropriate for more severe injuries (see page 20). Exercise the thigh muscles by tightening and relaxing them for several minutes at a time, as often as possible. For minor injuries simply bandage for support.

Ankle

An injured ankle usually leads to dropping of the foot; this makes walking difficult or impossible as the toes only, instead of toes AND heel strike the ground. The foot must be kept up at a right angle to the leg:



Use heavy elastic bandages from the toes to just below the knee, keeping the foot up, and covering all skin. If the ankle is very swollen, especially on both sides, when a more severe injury must be suspected, then pad and bandage the foot, ankle, and lower leg with cotton wool and bandages, as previously described for the knee. Rest, and keep the leg ELEVATED ABOVE CHEST LEVEL until the swelling subsides - after two or three days. Then rebandage and see if you can get about.

When using any bandage: MAKE SURE IT IS NOT TOO TIGHT: toes (or fingers) must remain warm and pink and have feeling.

You may well have to adjust your footwear to allow extra room for bandages.

5. Head injuries

CONSCIOUSNESS

Check STATE OF CONSCIOUSNESS (page 4).

Always suspect a neck injury and, if necessary, treat as described in Spinal Injuries (page 17).

If the blow to the head has been sufficient to knock the victim unconscious then complications are possible. A dripping nose, or bleeding from the nose or ear may indicate a fractured skull: GIVE ANTIBIOTICS - SEPTRIN FORTE TABLETS : one, 12-HOURLY, if conscious and able to swallow. If not, the tablets should be lubricated and inserted rectally.

The victim who is NOT FULLY CONSCIOUS should have a record kept of:

- Level of consciousness (e.g. awake and alert, drowsy, reacts to pain, unresponsive)
- Active movements of each arm and leg
- Size of pupils(draw them)
- Whether each pupil reacts to light by contracting.

Record these observations at intervals depending on the rate of change: from every five minutes to every hour.

- TREAT as in basic life support flow chart (page 5). Keep the airway clear and give oxygen if he is blue
- CONTACT the M.O. as soon as possible
- DON'T leave him alone
- DON'T give him painkillers or alcohol when he wakes.

The victim who is CONSCIOUS after a head injury should be observed for, and must be warned to report any:

- Headache
- Vomiting
- Irritability or change in behaviour
- Loss of memory
- Incoordination; tingling, numbness or weakness of limbs
- Changes in eyesight.

Such complaints may indicate a blood clot developing inside the skull which will require URGENT EXPERT MEDICAL ATTENTION.

Scalp wounds

These may bleed profusely: they should be dressed with a clean pad firmly bandaged in place without undue pressure. Direct pressure may be necessary for spurting blood vessels and, if bleeding persists: **SEW UP THE WOUND** (see page 28).

Fractures of the face

See broken nose, page 18. More severe facial fractures involving the lower and upper jaws can be dangerous if the airway is blocked by blood, a broken jaw, or wobbly tongue. Let the man sit with his head hanging down. Sir Harold Gillies (the New Zealand proponent of the art of Plastic Surgery) said of these injuries "If you turn me so that I can see Heaven, I'll surely soon be there!". If the lower jaw is broken use a barrel bandage (below). **PENICILLIN CAPSULES 250 mg** : two, 6-hourly (or **ERYTHROMYCIN CAPSULES 250 mg** : two, 6-hourly if allergic to penicillin) should be given by mouth if possible (the capsule contents may be emptied out and mixed with something sweet to be sucked up) or lubricated and inserted rectally.



6. Wounds

The most important part of the treatment is:
CLEAN THE WOUND.

Gently wash the wound with warm water and PHISOHEX or SAVLON, and meticulously remove any foreign material with forceps and swabs.

Puff on some DRY SAVLON (IODINE) SPRAY (or NEOTRACIN ANTIBIOTIC POWDER, in the field) and cover with a NON-ADHERENT DRESSING. Secure with adhesive tape or bandage.

Gaping wounds, especially on the hands, feet, and face may need closing. If in doubt, and especially if the wound is ragged or dirty with foreign material, simply CLEAN AND DRESS. There may be circumstances where the function and survival of the party depends on a man continuing to use his hands or feet; closing the wound may then be best.

A BUTTERFLY CLOSURE or WOUND CLOSURE STRIP may be adequate; make sure the skin edges are dry (wipe with spirit) before sticking on the adhesive surfaces. Bandage the part firmly.

STITCHING may be necessary - see next page.

Give a BOOSTER DOSE of tetanus toxoid: 0.5 ml (one ampoule) TETANUS VACCINE ADSORBED, subcutaneously, (page 49) if the patient has not had one recently.

Consider the possibility of damage to nerves or tendons in the depths of the wound; the part beyond the wound may be numb or not function properly. Also remember the possibility of a Compound Fracture (page 21).

If a wound later becomes infected: pain, redness, swelling, heat (local or spreading), or fever or swollen glands in armpit/groin - then give ANTIBIOTICS: ERYTHROMYCIN CAPSULES 250 mg : two, 6-hourly. REMOVE alternate or, if necessary, all STITCHES in order to release any pus, if present, and bathe and dress the area.

STITCHING

Open a DRESSING PACK, then wash hands and/or wear surgical gloves.

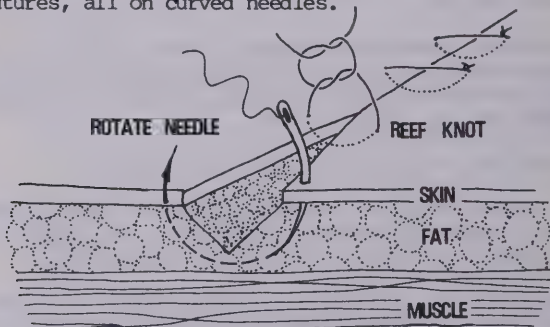
Clean the skin around the wound with HIBITANE IN SPIRIT or SAVLON.

Inject 1% PLAIN XYLOCAINE (without adrenaline) under the wound edges where the stitches will go. Insert the needle through the fat in the wound (page 49). Keep the needle moving while injecting. Do not use more than 20 ml 1% Xylocaine.

WAIT 5 MINUTES.

To staunch bleeding PRESS on the wound with a sterile swab for thirty seconds at a time.

Stitch scalp with 2/0 nylon sutures, face and fingers with 4/0 prolene, and other skin with 3/0 silk sutures, all on curved needles.



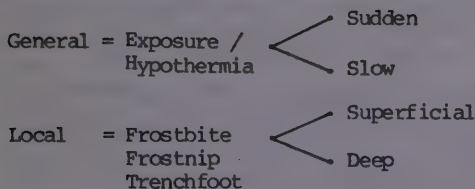
DON'T sew in any dirt. DON'T pull the stitches too tight. The skin edges should just meet.

Cover with TULLE GRAS and a few layers of GAUZE and secure with bandages and adhesive plaster.

Remove stiches in:

- 7 days - skin; limbs and trunk
- 10 days - scalp
- 5 days - face

7. Cold injury



AVOID IT!

- DON'T fall in the water.
- DON'T lose your gloves.
- DON'T lose your way.
- DON'T get exhausted.
- DO use lip and nose protector.
- DO be properly equipped and prepared.

If you think you or your mates may be suffering from hypothermia: STOP, REST, and WARM UP. EXPOSURE and EXHAUSTION go together.

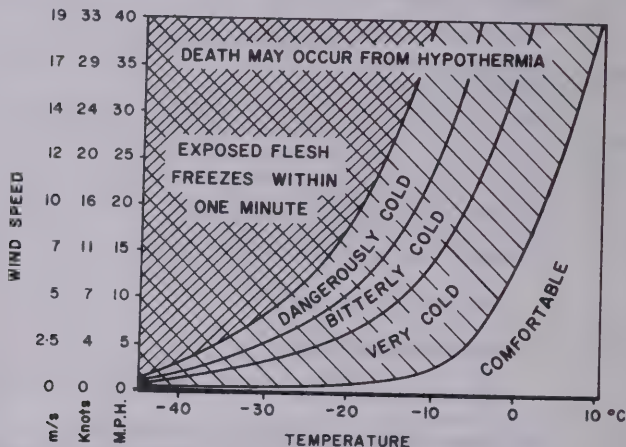
If you have a case of FROSTBITE of hands or feet, don't thaw it until you are bivouaced safely and SURE THAT THE PART WON'T BE REFROZEN.

Use the BUDDY SYSTEM to watch for the first signs of hypothermia and frostbite.

WINDCHILL

As air temperature falls below that of the body, heat will be lost: by radiation (if you are sunburned), by conduction (if you are lying on the snow or ice, or in water), and by convection if moving air is able to blow heat away from the body. Convection is usually the main cause of heat loss and clothing assemblies that trap air give insulation.

The faster the air moves the more heat it can drag away from any object. Thus WINDCHILL: the greater cooling effect of moving air is shown in the windchill chart. It takes little windspeed to increase the windchill and over some 30 knots there is little extra effect.



Windchill can also be shown as:

EQUIVALENT TEMPERATURE

At any wind speed for a given air temperature the equivalent temperature in still air is shown.

WIND SPEED m/sec mph kts			AMBIENT TEMPERATURE °C							
			-40	-30	-20	-10	-5	0	+5	+10
			EQUIVALENT TEMPERATURES °C and							
			DANGER OF HYPOTHERMIA FOR PROPERLY CLOTHED PERSON							
			GREAT INCREASING LITTLE							
			EXPOSED FLESH MAY FREEZE							
21	46	40	-87	-71	-54	-38	-29	-21	-13	-4
15	35	30	-84	-68	-52	-36	-28	-20	-12	-3
10	23	20	-77	-62	-49	-31	-24	-16	-9	-1
5	12	10	-62	-49	-36	-23	-16	-10	-3	+2
3	6	5	-48	-37	-26	-15	-9	-3	+1	+7
0	0	0	-40	-30	-20	-10	-5	0	+5	+10

HYPOTHERMIA or EXPOSURE

This is due to general chilling of the body causing lowered internal body (core) temperature. The surface of the body (shell) cools first and frostbite may occur; with further loss of heat the core temperature drops. Rectal temperature may be measured with a LOW READING CLINICAL THERMOMETER; when this temperature falls to 35°C or below the condition is established and dangerous. Heat loss will progress causing unconsciousness and then death as the heart stops.

LEVELS OF HYPOTHERMIA

What happens as the core temperature drops:

°C	
37.6	"Normal" Rectal Temperature
37.0	"Normal" Oral Temperature
35.0	Shivering maximum, consciousness clouded
33.0	Heat loss will continue unless protected
	<u>SEVERE HYPOTHERMIA BELOW THIS TEMPERATURE</u>
30.0	Heart may stop if irritated
26.0	Victim seldom conscious
24.0	Pupil will not change size when illuminated
20.0	Heart standstill
18.0	Lowest temperature of ACCIDENTAL Hypothermia victim with recovery

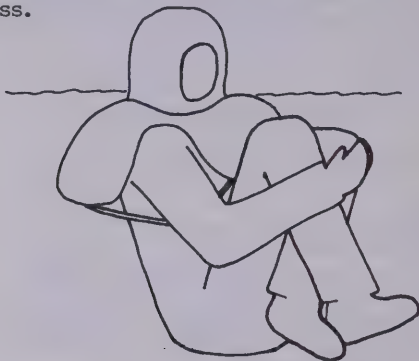
Diagnosis of Death - Frozen eyeballs and no red reflection from back of eye
- FAILURE TO REVIVE on rewarming

The body temperature is normally maintained by a balance between Heat Production: from the digestion and metabolism of food, and from muscular activity which includes shivering; and Heat Loss: cold, and wind, and wetness. In contrast to frostbite which usually only occurs at very low temperatures, hypothermia may develop at air temperatures above freezing; it may occur in the "very cold" range on the WINDCHILL CHART (previous page) if you are not well clad in dry, windproof clothing.

SUDDEN HYPOTHERMIA

SUDDEN HYPOTHERMIA is usually due to falling into icy water. Avoid it!

If rescue is likely to be delayed beyond a few minutes then STAY AFLOAT WITH THE MINIMUM OF EFFORT. Curl up arms and legs, cover forehead. Keep your head out of the water and stay as still as possible to minimise heat loss.



Only swim hard to keep warm if it is obvious that rescue, shore, or boat is imminent. Then move as quickly as possible. Once out of the water curl up and huddle out of the wind. Put on spare dry clothes and embrace each other if companions are present. Woollen or fibre-pile clothes may be rung out and reworn. Get something wind-proof over the top.

If you are a rescuer then do everything possible to keep the victim flat, and head down. Remember, the only certainty of death is: FAILURE TO REVIVE ON REWARMING.

Once out of the water a hot bath or shower (42°C - as hot as the normal hand can stand) is the best treatment if available.

If a bath is used the arms and legs should be kept out, the airway watched, and the temperature of the water kept up.

SLOW HYPOTHERMIA

SLOW HYPOTHERMIA is insidious and usually the result of "Murphy's Law": one thing goes wrong then everything possible goes wrong. Delays occur due to equipment failure or an accident; clothing or supplies are found to be inadequate; the weather deteriorates; you become lost and exhausted. The natural tendency to press on has led to many deaths. This applies to groups as well as individuals.

DON'T F-FORGET THE F-FIRST SIGNS:

- FATIGUE
- FITS OF SHIVERING
- FEAR
- FOGGY SPEECH
- FUNNY BEHAVIOUR
- FALLING
- FAINTING

The "funny behaviour" may even include taking off some clothing and abandoning it.

ACTION: If any member of the party looks like this: STOP. Get into shelter, put on extra clothing, (insulate the forehead), use space blanket or plastic survival bag, huddle together and give hot food and drink if possible, cold food if not. Breathe warm air from the bag or a muffle around the mouth. NO ALCOHOL. FURTHER HEAT LOSS MUST BE PREVENTED.

If you have to SEARCH for a man then take sleeping bags, space blankets, or plastic bags, Burn-pac or bivouac bag with you. Get him into these when found; he will be losing less heat while you organise his evacuation. Handle him GENTLY and keep him FLAT AND LEVEL if he must be carried. If he must be tilted then HEAD DOWN is safer than head up.

If he is unconscious, but breathing (albeit very slowly and shallowly) and has a pulse (feel carefully in the neck or groin), then keep the airway clear (lateral position, page 4). Once in shelter GENTLY ease him out of his clothing and zip him into sleeping bags. Donate heat with other bodies in the bag, or anything warm to the sides of the neck, armpits, and groins; insulate around the face so that warmer air is breathed. This SLOW REWARMING (0.5°C - 1.0°C per hour) is safest in the field.

EVEN IF HE APPEARS DEAD: TRY IT.

DON'T DESPAIR: HAVE A GO: The definition of death is failure to revive on rewarming.

You may have a BURN-PAC available, for use with hot water, in which case you will have been briefed in its use.

If the victim suddenly collapses or has a fit, and APPEARS TO DIE: commence and continue C.P.R. (page 12) until he is rewarmed.

OXYGEN should be given, if available, if he is BLUE, whether conscious or unconscious.

Slow hypothermia may also occur with prolonged immersion in cool water; the same principles of treatment apply.

FROSTBITE

Frostbite means that part of the body is frozen: either the skin and the tissue immediately beneath (superficial frostbite); or frozen through (deep frostbite). It usually starts in the fingers or toes and may spread up the limb.

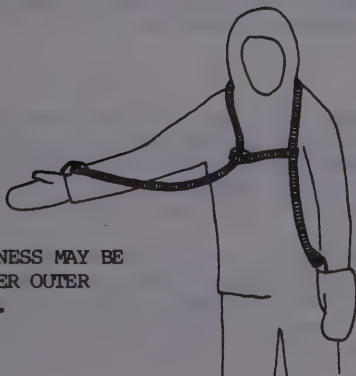
FROSTBITE IS ALMOST ENTIRELY AVOIDABLE. Consult the WINDCHILL CHART and use proper clothing assemblies. Frostbite is uncommon at temperatures above -15°C to -10°C unless the flesh is WET from drifting snow melting on the skin (even inside gloves), or exposure is PROLONGED.

Properly equipped, the only skin exposed is on the face. To protect this use liberal applications of LIP AND NOSE PROTECTOR: the greasy layer acts as an insulator.

Use the BUDDY SYSTEM to watch each other's face for white patches.

Make sure footwear is CLEAN and NOT TOO TIGHT. Disassemble Mukluks, knock out ice, and dry the duffle each night.

Use MITTENS in extreme conditions, secured by the traditional POLAR GLOVE HARNESS to avoid loss of outer gloves.



THIS HARNESS MAY BE
WORN UNDER OUTER
GARMENTS.

Remember, skin may adhere to very cold metals - use undergloves or mitts; and fuel may be supercooled - don't douse yourself and others when refuelling.

If frostbite does occur the parts affected are frozen solid: white, cold, and numb. The tissue is damaged by injury to the blood vessels, clotting of blood, and dehydration of the cells as ice crystals form between them. At this stage the parts are not painful and shelter and facilities should be sought before thawing. Men have walked to safety on frozen feet which made them stretcher cases when thawed. Escape from bad conditions also means that there is less chance of further frostbite. THAWING and REFREEZING ARE PARTICULARLY DESTRUCTIVE TO THE PART.

ACTION: Rapid thawing in fairly hot water is best. Add PHISOHEX, if available, to water at 42°C (as hot as the normal hand can stand) and immerse the part until it is red and throbbing. Add hot water to keep the bath temperature constant and agitate to keep the temperature even. Hot compresses may be used if necessary. Then elevate the part, keeping it lightly covered if indoors, or bandaged if travel must continue. BLISTERS may, if the area might be disturbed, be aspirated with a sterile syringe and needle, followed by a light spray of IODINE POWDER SPRAY or NEOTRACIN, and a NON-ADHERENT DRESSING if bandages are used. Give PAIN KILLERS (page 48); the throbbing hurts!. Do NOT rub snow on the part; this is mythical, useless and dangerous.

FROSTNIP

Only the surface of a part - a small area of skin - is frozen: it is recognised (often by others, on the face) as a small white patch. This commonly occurs on the face or tips of toes or fingers. It may progress to deeper freezing (frostbite) if not treated.

ACTION: On the face - retire from the wind and breathe on the area under cupped hands; press warm fingers on the area. Fingers and toes - warm them with your own hands, belly, armpits, groin. A companion may help. Ensure mittens, socks, and duffle are clean and dry.

TRENCHFOOT

This is due to long exposure of the immobile feet (or hands) to cool/cold, damp conditions (any point on the windchill chart). Damage to the skin, nerves and blood vessels results. The feet are not frozen but become cold, white, insensitive, and sometimes painful. As the circulation improves there may be discolouration, flushing, blisters, and some pain (sometimes days after the cold injury). It has occurred on our expeditions following tractor driving for long periods in damp footwear.

PREVENTION, again, is called for: wear dry socks, use foot powder, have plenty of room in your boots, and wriggle your toes.

TREATMENT:

Slow rewarming in air at 20°C ("room" temperature) with "bed" rest and ELEVATION of the legs, and PAIN RELIEF (page 48).

8. Burns

FIRST AID: Flush the area with cold water or apply cold wet compresses.

TREATMENT: Give PAIN KILLERS (page 48). Carefully cut away any burned clothing. Apply SILVAZINE CREAM liberally if available. With or without this apply TULLE GRAS, plenty of GAUZE padding, and bandage on. If blisters are present they may be aspirated with a sterile syringe and needle before the dressing is applied.

Make sure the bandages and dressings don't slip, by securing with adhesive plaster.

Give PLENTY OF FLUIDS by mouth. Check that the patient is urinating.

If the burn area is more than a whole leg or half the trunk, SHOCK may occur; special treatment with intravenous infusion will be necessary (page 15). GET HELP.

You may have a BURN-PAC available in which case you will have been instructed in its use.

Antibiotics may be given: PENICILLIN VK Capsules 250 mg : two, 6-hourly (or ERYTHROMYCIN, if allergic).

9. Carbon monoxide and fume poisoning

CARBON MONOXIDE (CO) POISONING

Deaths have occurred from CO poisoning so:

BE CAREFUL: VENTILATE.

CO can be produced by burning anything containing carbon: open flames, gas heaters, internal combustion engines. DO NOT HAVE THESE GOING IN SLEEPING AREAS. Fix a CARBON MONOXIDE DETECTOR SPOT in your quarters and keep an eye on it for darkening. Use an Aspirating Bulb and Chemical Detector Tube if available.

First signs of poisoning are slight headache and shortness of breath. Nausea, chest pain, panting, and mental changes follow. Allegedly, the victims' COLOUR may be PINK or CHERRY RED. THERE MAY BE NO WARNING SYMPTOMS AT ALL: unconsciousness and death may quickly follow.

ACTION: Get victim, yourself, and others outside or into another shelter at once. DON'T GET TRAPPED YOURSELF. You may use a damp handkerchief as a mask. Keep victim quiet and give him 100% OXYGEN with an OXYVIVA. An industrial gas cylinder may be used if nothing else is available. Give ARTIFICIAL RESPIRATION (E.A.R. page 9) if breathing is suppressed (using the Oxyviva with 100% oxygen is best).

METAL FUME FEVER

Welding or cutting metal in confined spaces may produce fumes. Zinc fumes from galvanised iron is most common but other types occur. If inhaled these fumes irritate the lungs and cause poisoning: fever, chills and shivering, sweating, muscular aches and weakness.

FIRST AID: Remove the victim from the area. Sit him up if he has difficulty breathing. Give him OXYGEN (OXYVIVA or INDUSTRIAL OXYGEN) if he is blue. Recovery usually occurs in 24 to 48 hours.

10. Skin

Take care of your skin; with a little help it can cope with most things. Wash, dry, and powder your body when possible. Exposed skin on face and hands may dry out: use LANOLINE or AQUACARE on these areas. BARRIER CREAM is useful. Protect the hands with WORK GLOVES when unloading etc.

SUNBURN

Extra protection is needed. Apply an ANTI-SUNBURN CREAM liberally. Use a LIP AND NOSE PROTECTOR, not forgetting under the nose when on snow. TREATMENT: Take ASPIRIN or PANADOL (page 48). Apply CALAMINE LOTION, or, if severe, HYDROCORTISONE CREAM 1% every 8 hours for up to two days only.

CHAFING

This is sometimes a problem on the inside leg. Wear well washed, well rinsed soft underpants or pyjama trousers. Wash, dry and powder the skin with BABY TALCUM POWDER. Apply ZINC CREAM for treatment.

BOILS

This infection, caused by bacteria on the skin, results in a red, painful lump centred on a hair follicle. TREATMENT: Local heat applications with hot water pads, or HIRUDOID ointment to bring the boil to the surface. If the centre softens and becomes yellow it may be opened by a criss-cross cut with a scalpel: ETHYL CHLORIDE SPRAY may be used to freeze the skin first. Dress with MAGNAPIASM on gauze. If skin infection appears to spread: fever, red lines towards trunk, tender glands in armpit or groin; then take ERYTHROMYCIN CAPSULES 250 mg : two, 6-hourly.

BLISTERS

Prevention: dry, clean, powdered feet; clean socks; and properly fitting footwear. Treatment: release the fluid with a sterile needle and cover with a Bandaid.

11. Eyes

SNOW BLINDNESS

This is caused by ultraviolet (UV) light burning the eyes. They become red, painful and watery; and light is intolerable.

THIS MUST BE AVOIDED as it is a **CRIPPLING INJURY** and may seriously delay you and your party.

Wear dark glasses or goggles with appropriate lenses (not yellow) at all times in the field. Even on overcast days, or on rock, enough UV light may be experienced to burn the eyes. Don't use glasses only tinted at the top; UV light is reflected up from the snow. **DO NOT LOSE YOUR GLASSES.**

TREATMENT: Rest the eyes for at least 24 hours: that means close them. A day in camp with pads bandaged over the eyes is best. Cold compresses may provide relief. **LACRILUBE S.O.P. OINIMENT** squeezed under the eyelids every 4 hours will help. Take **ASPIRIN** or **PANADOL** (page 48).

FOREIGN BODY IN THE EYE

Loose material or noxious fluids should be washed out with **WATER** or **EYESTREAM** (preferably warm) **AT ONCE.**

A fragment may be looked for under the lower lid or turned back upper lid. Ask the **M.O.** to show you how to do this before your trip.

If the eye still hurts the fragment may have scratched the cornea. Squeeze **LACRILUBE S.O.P OINIMENT** under the eyelids every 4 hours and fix pads over the eyes to keep them shut.

A hot or fast moving fragment may embed itself in the cornea. Don't try to remove it: use ointment and pad as above.

12. Teeth

Keep your teeth clean and you will avoid most problems. When in the field keep a toothbrush in your pocket AND USE IT! Even without toothpaste it cleans the teeth after eating. You may need tooth picks or WAXED dental floss if there are gaps between your teeth.

LOST FILLINGS

This is the commonest problem. If a filling loosens then try to remove it. Then seal the cavity with a plug of CAVIT-W, replacing as necessary. Only leave the cavity open if pus is draining.

TOOTHACHE

For severe toothache take pain killers (page 48) and PENICILLIN VK CAPSULES 250 mg : two, 6-hourly; (or ERYTHROMYCIN, if allergic). If there is a HOLE in the aching tooth apply OIL OF CLOVES on a cotton wool ball.

13. Bellyaches

INDIGESTION

The belly may be uncomfortable or there may be "acidity"; sourness and burning rising to the back of the throat, and mouth watering. Food usually makes it better, sometimes worse. **TREATMENT:** regular food and antacids; chew **GASTROGEL TABS** : two, after meals and at night, and between meals if necessary. Avoid Aspirin.

VOMITING

Try to discover a cause. Is the belly tender? See Appendicitis (next page). Take **MAXOLON TABLETS** 10 mg : one, 8-hourly. If vomiting is severe give an **INJECTION** of **PHENERGAN** : 25 mg, intramuscularly, into the upper, outer, buttock (page 50). This will make the patient **DROWSY** as well as less nauseated.

CONSTIPATION

Drink plenty of fluids, and eat bran or muesli. If all else fails take **DUROLAX TABLETS** : 2-4 at night.

PILES

One or more lumps may be felt at the fundamental orifice when straining to empty the bowels. Bright red blood may be discovered and there may be some itching. **TREATMENT:** Avoid constipation (as above). **ULTRAPROCT OINIMENT** or **SUPPOSITORIES** may be used, once daily, if the irritation is a nuisance. If the lumps become painful they may be more difficult to treat: **ULTRAPROCT**, as above, and **REST**, face down with the buttocks up, plus icepacks to the orifice if possible. It may be possible to ease the lumps back into the bowel. **NOTE:** You must consult the Medical Office when possible as lumps and bleeding are not always "piles".

DIARRHOEA

If this is interfering with the progress of your party you may take **LOMOTIL TABLETS** : two, 6-hourly, for **ONE** day; then one, 6-hourly, until diarrhoea stops.

APPENDICITIS?

The only way to minimise your chances of suffering appendicitis (apart from removal of the organ) is attention to diet to AVOID CONSTIPATION. Eat BRAN OR MUESLI for breakfast. Drink FLUIDS.

APPENDICITIS usually starts as abdominal pain. Cramps felt in the region of the navel are followed by steady pain felt low down on the right-hand side of the belly (R.I.F.). There may be a little vomiting. Temperature may be raised. Movement, or pressure on the R.I.F. may aggravate the pain.

Non-operative treatment:

- . Rest.
- . Clear fluids only, by mouth, or INTRAVENOUS INFUSION if the necessary equipment is provided and you have been instructed in the technique (page 51). Drip rate is 20 drops per minute (= 1000 ml in 8 hours). The appropriate I.V. fluid will be decided on by your M.O.
- . Either: SEPTRIN FORTE TABLETS : one, 12-hourly with
FASIGYN TABLETS 500 mg : two, 12-hourly, if
these tablets are kept down.
 - or: SEPTRIN FORTE TABLETS : one, 12-hourly,
orally, with FLAGYL SUPPOSITORIES : 1 gram,
per rectum, 8-hourly, if vomiting is a
problem.
 - or: LATAMOXEF INJECTION : 1 gm, in 3 ml of
sterile water : 8-hourly, intramuscularly
(page 50), if vomiting is a problem.
- . PETHIDINE injections for pain (pages 48 and 50).

Consult your M.O. as soon as possible.

14. Other ailments

HEADACHES

If the head has been banged see "Head Injuries", page 25. Could there be CO poisoning (page 39)? If not, then consider other possible causes: snow blindness (page 41); constipation (page 43); tension in neck muscles, or migraine. The neck may be exercised and rested in a comfortable position. Migraine will usually be recognized by a previous sufferer.

TREATMENT: attend to any underlying condition, and ASPIRIN or PANADOL will usually help.

MOUTH ULCERS

Massage BONJELA into the ulcers 4 times a day; or use CORLAN PELLETS, placing one against the ulcer, keeping quiet, and letting it dissolve on the spot.

SORE THROAT

Have a look at it with the help of a mirror, or friend. If it is VERY red and/or there are yellow spots on the tonsils take PENICILLIN VK TABLETS 250 mg : one, 6-hourly (or ERYTHROMYCIN if allergic).

In any event gargle with ASPIRIN solution: 2 tablets in a glass of warm water, 4 times a day. Suck any throat lozenges you fancy.

CEPACOL ANAESTHETIC THROAT LOZENGES are best if you gargle the saliva.

BRONCHITIS

This is uncommon but may occur.

TREATMENT: Rest and take ASPIRIN OR PANADOL : two tablets, 4-6 hourly. Inhale steam.

If you are coughing up yellow or green pus take SEPTIN FORTE TABLETS : one, 12-hourly.

EARACHE

A possible serious cause of this is infection in the middle ear. If earache persists and temperature rises use:

- NEOSYNEPHRINE 0.5% NOSE DROPS : 8-hourly;
- EPHEDRINE TABLETS 25 mg : 8-hourly;
- AURALGICIN DROPS into ear : 8-hourly;
- ASPIRIN or PANADOL TABLETS (see page 48);
- AMOXYCILLIN CAPSULES 250 mg : one, 8-hourly (or ERYTHROMYCIN if allergic).

Sniff, don't blow your nose; this may avoid blocking the ears.

NB. DO NOT FLY if your ears are blocked. If you must fly then use NEOSYNEPHRINE NOSE DROPS before embarking. If you have trouble clearing your ears in an aircraft then tell the pilot and practise equalisation manouevres.

BLOOD BLISTER UNDER NAIL

This really hurts as pressure builds up under the nail. If the pain increases and there is obviously blood under the nail which is not escaping it may be released without pressure by using the heated end of a paper clip. Don't be afraid; do it yourself if you don't trust a friend. Heat the end of the clip over a flame till red-hot and LAY it on the nail over the centre of the blood blister. After 2 or 3 burns the blood will spurt out with instant relief. Clean and dress.

TRAVEL SICKNESS

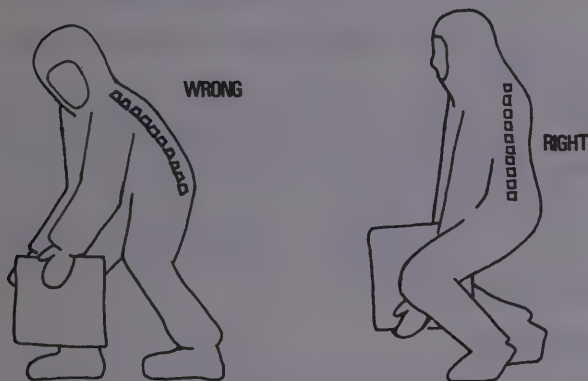
In a ship the best advice is: keep your head down. Have biscuits and water or whatever you fancy beside your bunk. Consume what you can of these quickly, without getting out of the bunk, then get your head down again. You may obtain drugs from the M.O.: AVOMINE TABS 25 mg : one, 8-hourly. They will make you sleepy. EPHEDRINE TABS 30 mg : one, 8-hourly, taken at the same time as the Avomine help the anti-sickness effect. But they may cause headaches and keep you awake, in which case take only the AVOMINE.

BACKACHE

Heavy work will stress many backs, especially those not used to hard labour. Take care!

Attempting to lift 50 kg at arm's length produces a pressure of 1 tonne on the low-back discs!

Bend the knees and lift close to the body, using buttock and thigh muscles. Keep the back straight and do not twist while lifting.



INSOMNIA (CAN'T SLEEP)

The surest way to this complaint is to wake and get up late. Avoid this. Use anything to shade your eyes when you retire during the summer (blinds on windows or sleeping mask over face).

Drugs may be used for a few nights, if absolutely necessary : TEMAZEPAM CAPSULES 10 mg : one, after retiring, or MOGADON TABLETS 5 mg : one, thirty minutes before retiring, or VALIUM TABLETS 5 mg : as for Mogadon. Both Valium and Mogadon may keep you drowsy next day - so BE CAREFUL.

15. Using painkillers and antibiotics

PAINKILLERS

ASPIRIN (300 mg TABLETS : two or three, 4 - 6 hourly, with food or milk) is usually best but it can cause reactions : asthma, runny nose, sneezing, swelling, rashes. Aspirin can also affect the stomach, causing heartburn, abdominal pain, vomiting, or bleeding. The latter may reveal itself as black, tarry bowel motions.

IF IN DOUBT: take PANADOL (500 mg TABLETS : two, 4 - 6 hourly).

PETHIDINE is likely to be the strongest painkiller you could be called on to use. Inject 100 mg into the upper, outer buttock (page 50). Have the patient lying down as it may make him faint. The dose may be repeated up to 4-hourly.

DO NOT USE PETHIDINE if the patient has been UNCONSCIOUS after a HEAD INJURY, or if there is DIFFICULTY IN BREATHING.

ANTIBIOTICS

PENICILLIN VK capsules 250 mg (pages 26, 38, 42, 45)

- Take on an empty stomach - one hour before, or two hours after, food.

ERYTHROMYCIN FILM TABS 250 mg (pages 38, 42, 45, 46)

- Take immediately before food.

FASIGYN tablets 500 mg (page 44)

- Take with food or milk.

AMOXYCILLIN capsules 250 mg (page 46)

KEFLEX capsules 500 mg (page 22)

ERYTHROMYCIN CAPSULES 250 mg (pages 22, 26, 27, 38, 40, 45, 46)

SEPTRIN FORTE tablets (pages 25, 44, 45)

- All these may be taken at any time.

16. Injections

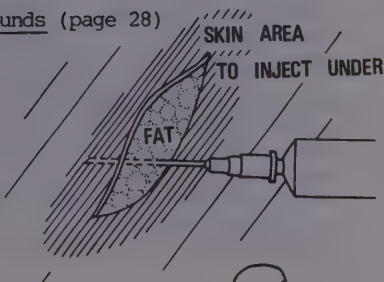
Pick your spot, then rub the area with an ALCOHOL SWAB, and again when finished.

MOST IMPORTANT: Check the name on the ampoule before sucking up the contents.

ASPIRATION : Once the needle is in place hold the barrel of the syringe firmly and pull back on the plunger : if BLOOD is drawn into the syringe DO NOT INJECT - MOVE THE NEEDLE!

Local anaesthetics for wounds (page 28)

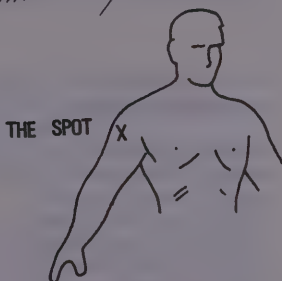
Use the 5 cc syringe with 22 G x 1" needle for large wounds, or with 25 G x 5/8" needle (from 2.5 cc syringe) for small wounds. **KEEP THE NEEDLE MOVING WHILE INJECTING.**



Subcutaneous injections

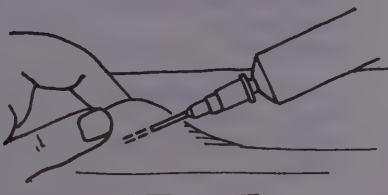
For TETANUS TOXOID (page 27).

Pinch up the skin of the upper arm just below the shoulder.



Pierce the skin with a short sharp jab and inject deep under the fat.

Use a 2.5 cc syringe with 25 G x 5/8" needle.

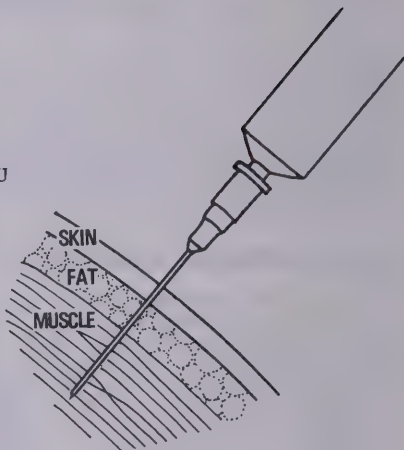


Intramuscular injections

1. For ADRENALINE (page 53):

Inject in same spot on the shoulder but stretch the skin between the fingers and push the needle straight into the muscle. MAKE SURE YOU ASPIRATE FOR BLOOD FIRST. DO NOT INJECT IF BLOOD IS OBTAINED (see 'ASPIRATION', previous page).

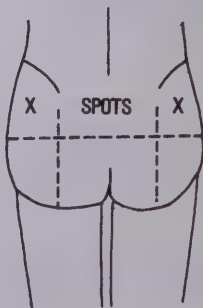
Use a 2.5 cc syringe with 25 G x 5/8" needle. For a fat individual you may have to use the 22 G x 1½" needle from a 5 cc syringe.



2. For PETHIDINE (page 48), LATAMOXEF (page 44) or PHENERGAN (page 43)

Push the needle straight into the upper, outer quarter of the buttock. MAKE SURE YOU ASPIRATE FOR BLOOD FIRST. DO NOT INJECT IF BLOOD IS OBTAINED (see 'ASPIRATION' page 49):

Use a 5 cc syringe with 22 G x 1½" needle from the 10 cc syringe.



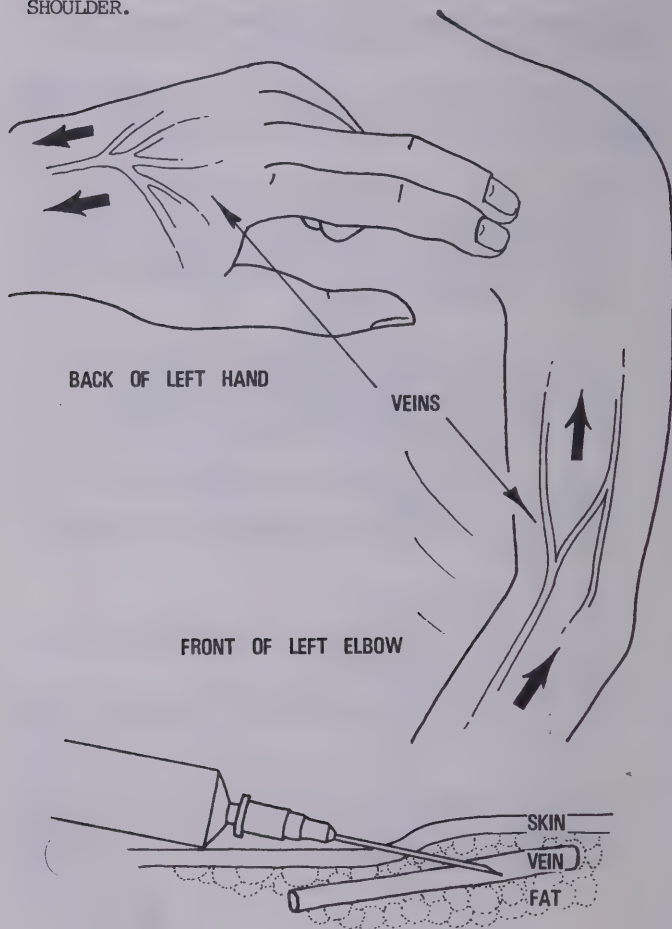
Intravenous injections

For DILUTED PHENERGAN, and SOLUCORTEF (page 54), or INFUSIONS (pages 15, 38 and 44).

Use a syringe and 22 G x 1½" needle, or an INTRAVENOUS and SCALP VEIN SET (BUTTERFLY) : 19 Gauge for HAEMACCEL, 22 Gauge for fluids or injections.

- Apply a light tourniquet around the upper arm; the arm should be warm and the fist opened and closed repeatedly. Lightly slap the back of the hand and the front of the straight elbow until a vein is seen and/or felt; IF IT PULSATES IT IS AN ARTERY! TRY ANOTHER SPOT.
- Pull the skin over the vein downwards with the fingers of one hand and insert the needle (bevel up) through the skin with a short, sharp, jab; keep the syringe and needle nearly parallel to the skin surface and slide it into and up the vein.
- Aspirate with a syringe and needle; deep red blood should appear.
(OR, with a butterfly set, blood will flow along the tubing).
- Release the tourniquet.
- Inject, then withdraw needle and press on the hole for a minute or two.
(OR, with a butterfly needle, stick down the wings with a piece of adhesive plaster and connect up the tubing).
- If the needle is inserted into a vein in the front of the elbow then keep the elbow straight by bandaging it to a splint. (If in the back of the hand then splint the wrist).

Insert needle in direction of arrows: TOWARDS SHOULDER.



Note: Needle is inserted with the BEVEL UP!

17. Allergy to drugs

Virtually anything swallowed or injected can cause the severe allergic reaction called ANAPHYLACTIC SHOCK, with:

- swelling of face and body
- difficulty in breathing
- wheezing
- blueness
- pains in chest and belly
- collapse

ALWAYS ASK IF THERE IS ANY KNOWN ALLERGY TO A DRUG BEFORE ADMINISTERING IT; IF THERE IS, DON'T!

It must be emphasised that such bad reactions are very rare. If a person is nervous, and faints or over-breathes after the drug, DON'T RUSH IN WITH THE NEXT TREATMENT.

WAIT A MINUTE AND WATCH.

Treatment

If a reaction does occur then give ADRENALINE INJECTION : 0.5 ml to 1.0 ml (half to one ampoule), intramuscularly, just below the shoulder (page 50). Give the half ampoule, wait a few minutes and if not much improvement is evident give the other half.

CAUTION: after inserting the needle draw back on the plunger (ASPIRATE); if blood enters the syringe then shift the needle and try again. This avoids the very dangerous injection of adrenaline into a blood vessel (page 49).

If the allergic reaction is SEVERE, also give PHENERGAN INJECTION : 50 mg (one ampoule), DILUTED WITH WATER, intravenously, and SOLUCORTEF MIX-O-VIAL : 100 mg or 250 mg, intravenously (see page 51)

Use the 20cc syringe with 21 G x 1½" needle; suck up the ampoule of PHENERGAN then fill the syringe with STERILE WATER from TWO AMPOULES, SHAKE (the syringe) then inject intravenously over one minute.

Meanwhile, dissolve the SOLUCORTEF and suck it up into the syringe provided; then either leave the needle from the phenergan injection in the vein and change syringes OR inject into another vein.

OXYGEN should be given if the victim is BLUE or having DIFFICULTY IN BREATHING.

Ask your M.O. to instruct you in the techniques before you leave on your field trip.

18. Observation of patients

If somebody is ill, and you must wait for skilled help, some record of the patient's condition will be valuable for the M.O. How often you make the record depends on how quickly the patient's condition changes.

Head injuries

See page 25.

Shock

If shock is due to bleeding, either external or internal (page 14) or burns (page 38), then record:

- Pulse; every 5 to 10 to 15 minutes
- Rate of respiration; every 10 to 15 minutes
- Level of consciousness (see page 25)
- Each time urine is passed, and its colour.

Hypothermia

Record as for shock, together with:

- Rectal temperature (with low-reading clinical thermometer) every 15 to 30 minutes.

Fevers

Record every four hours:

- Pulse
- Rate of respiration
- Temperature (by mouth)
- Each time urine is passed, and its colour.

Bellyaches (especially appendicitis, page 44).

Record as for Fevers, together with:

- Frequency of vomiting
- Frequency of bowel motions.

ACKNOWLEDGMENTS

Thanks are due to Professor John Masterton of Monash University Medical School, Dr Des Lugg, Senior Medical Officer, Antarctic Division, and those Medical Officers and expeditioners with the Antarctic Division who gave helpful criticism and advice in the preparation of this third edition of the manual. Professor Tess Brophy, Royal Brisbane Hospital, kindly helped with recommendations on resuscitation. I should also like to acknowledge the dedicated assistance of Andrew Jackson and Sandra Potter of the Publications Section of the Antarctic Division for their assistance with the illustrations and their design and editorial advice.

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PRIORITIES

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